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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,820	03/18/2004	Mitsuhiro Murata	119155	5892
25944	7590	10/18/2005		
OLIFF & BERRIDGE, PLC			EXAMINER	
P.O. BOX 19928			HOLMES, JUSTIN K	
ALEXANDRIA, VA 22320				
			ART UNIT	PAPER NUMBER
			3681	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/802,820	MURATA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Justin K. Holmes	3681	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 06 September 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-14 is/are pending in the application.
  - 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-5,7-10,13 and 14 is/are rejected.
- 7) Claim(s) 6 and 12 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____.   |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/18/04 and 8/9/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Species 1 claims 1-10 and 12-14 in the reply filed on September 6, 2005 is acknowledged. The traversal is on the ground(s) that the species are sufficiently related such that a search for the subject matter of any one species would encompass a search for the subject matter of the remaining species. This is not found persuasive because the remaining species 2 and 3 are patentably distinguishable from the embodiment shown in species 1.

The requirement is still deemed proper and is therefore made FINAL.

2. Claim 11 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species 3, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on September 6, 2005.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,825,723 to Martin.

Regarding Claim 1, the Martin patent teaches a drive motor 20 connected to a planetary gear assembly 10 that reduces a speed of rotation of the drive motor 20. The

planetary gear assembly has a flange 56 forming gear shafts that hold star gears 78. See Fig. 1. The flange 56 further forms projections projecting in the same direction of the gear shaft. The projections as broadly recited in Claim 1 are the pinion shafts that support star gears 80 as shown in Fig. 1.

Regarding Claim 2, the pinion shafts are a pin shape as shown in Figs. 1 and 2.

Regarding Claim 3, as shown in Figs. 1 and 2, the gear shafts that support the star gears 78 are arranged on a first circle having a center that is coincident with a rotation axis of the flange 56 and the pinion shafts that support the star gears 80 are arranged on a second circle having a center that is coincident with the rotation axis of the flange 56, wherein the second circle has a diameter different than that of the first circle.

Regarding Claim 4, the pinion shafts are disposed at positions without interfering with the star gears 78 supported on the gear shafts. See Figs. 1 and 2.

Consequently, all of the elements of Claim 1 and those claims depending therefrom are anticipated by the Martin patent.

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,825,723 to Martin as applied to claim 1 above, and further in view of U.S. Patent No. 4,249,964 to Bambuch et al.

The Martin patent lacks a teaching that the planet carrier has a heat treated layer on its surface including the surfaces of the gear shafts and the projections and that the heat treated layer has a hardness equal to or higher than 50HRC formed by heat treatment.

The Bambuch et al. patent teaches a process for chemical and thermal treatment of steel parts such as gear wheels, shafts and sleeves. See column 1, lines 7-10. The Bambuch et al. patent teaches that the steps of carburizing, hardening and tempering of parts takes place. See column 3, lines 34-63. The resulting product has a hardness of 62-63 HRC. See column 4, lines 1-10 and table in column 5.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Martin patent to include the chemical and thermal treatment as taught by the Bambuch et al. patent. The motivation for doing so would be improve the hardness and fatigue strength and to substantially uniform the surfaces as taught in the Bambuch et al. patent. See column 1, lines 10-12 in the Bambuch et al. patent.

7. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,825,723 to Martin as applied to claim 1 above, and further in view of U.S. Patent No. 5,609,542 to Kusumoto et al.

The Martin patent lacks a teaching that the planet carrier, gear shafts and projections are formed by cold forging and that the planet carrier has a continuous metal flow from itself to the gear shafts and the projections.

The Kusumoto et al. patent teaches that the planetary carrier or flange 11 can be forged in column 4, lines 52-55. The supporting pins 22 that support planetary gears are formed by a series of steps that press the supporting pins 22 out from the flange 11 using punches 31 and 32 and die 40. See column 4, lines 55-67 and column 5, lines 1-33 and Figs. 2A-2D. The supporting pins 22 are therefore integrally formed with the flange section 20 and has a continuous metal flow from the flange section 20 and flange 11 to the supporting pins 22. See column 5, lines 34-38.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Martin patent to form the planet carrier, gear shafts and projections by cold forging and that the planet carrier has a continuous metal flow from itself to the gear shafts and the projections as taught by the Kusumoto et al. patent. The motivation for doing so would be to reduce the number of parts, achieve greater ease of assembly, and reduce the cost of the carrier as taught in the Kusumoto et al. patent in column 5, lines 34-38.

8. Claims 1-4, 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,115,689 to Isozumi et al. in view of U.S. Patent No. 3,527,121 to Moore.

Regarding Claim 1, the Isozumi et al. patent teaches a starter unit having a motor 4 generating a rotating force, a planetary gear speed reducer 21 that reduces a speed

of rotation of the motor. The planetary gear speed reducer 21 has a planet carrier 21a forming gear shafts 21b projecting from a surface of the planet carrier 21a and a plurality of planetary gears 21c supported by the gear shafts 21b. See column 3, lines 30-63 and Fig. 1. The Isozumi et al. patent lacks the teaching of the planet carrier further forming projections projecting in a direction same as that of the gear shafts.

The Moore patent teaches a carrier 20 for a planetary gear system to hold planetary gears having end walls 22 and 24. A plurality of long pinion pins 48 are secured in apertures 40 and 42 and extend from end wall 24 to end wall 22. A plurality of short pinion pins 58 are secured in apertures 44 and 46 and extend from end wall 24 to end wall 22. The "projections" as broadly defined in Claim 1 are defined as the short pinion pins 58 in the Moore patent. Long pinions 54 are mounted on the long pinion pins 48. See column 2, lines 29-43 and Figs. 1 and 2.

Consequently, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Isozumi et al. patent to have a planetary carrier as taught in the Moore patent in order to provide for a carrier having minimum size and maximum rigidity to transfer torque. See column 2, lines 66-68 in the Moore patent.

Regarding Claim 2, the Moore patent teaches that the short pinion pins 58 are in the form of a pin shape. See Fig. 1.

Regarding Claim 3, the Moore patent teaches that the long pinion pins 48 are arranged in a pin center circle 72 that is coincident with a rotation axis of the planet carrier 20. See column 2, lines 42-50. The short pinion pins 58 are arranged in a pin

center circle 74 that is coincident with the rotation axis of the planet carrier 20 and has a diameter different than that of the pin center circle 72. See column 2, lines 69-72 and Figs. 1 and 2.

Regarding Claim 4, the Moore patent teaches that the short pinion pins 58 are disposed at positions without interfering with the long pinions 52. See Figs. 1 and 2.

Regarding Claims 7, 8, 13 and 14, the Isozumi et al. patent teaches an overrunning clutch 10 having a clutch outer portion 10b and a clutch inner portion 10a. The "one-way clutch" as broadly recited in Claims 7, 8, 13 and 14 is defined as an overrunning clutch by the Isozumi et al. patent. The clutch outer portion 10b is disposed to receive the rotation from the planetary gear speed reducer 9 and transmit rotation to the clutch inner portion 10a. See column 1, lines 30-36, and lines 43-60. The clutch outer portion 10b is integrally formed with the planet carrier and the drive force transmitting device 8. The clutch outer portion 10b holds the support shafts 9c that hold the planetary pinions 9d. See Fig. 2.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,115,689 to Isozumi et al. in view of U.S. Patent No. 3,527,121 to Moore as applied to claims 1-4, 7, 8, 13 and 14 above, and further in view of U.S. Patent No. 4,249,964 to Bambuch et al.

The Isozumi et al. patent and the Moore patent lack a teaching that the planet carrier has a heat treated layer on its surface including the surfaces of the gear shafts and the projections and that the heat treated layer has a hardness equal to or higher than 50HRC formed by heat treatment.

The Bambuch et al. patent teaches a process for chemical and thermal treatment of steel parts such as gear wheels, shafts and sleeves. See column 1, lines 7-10. The Bambuch et al. patent teaches that the steps of carburizing, hardening and tempering of parts takes place. See column 3, lines 34-63. The resulting product has a hardness of 62-63 HRC. See column 4, lines 1-10 and table in column 5.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Isozumi et al. and Moore patents to include the chemical and thermal treatment as taught by the Bambuch et al. patent. The motivation for doing so would be improve the hardness and fatigue strength and to substantially uniform the surfaces as taught in the Bambuch et al. patent. See column 1, lines 10-12 in the Bambuch et al. patent.

10. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,115,689 to Isozumi et al. in view of U.S. Patent No. 3,527,121 to Moore as applied to claims 1-4, 7, 8, 13 and 14 above, and further in view of U.S. Patent No. 5,609,542 to Kusumoto et al.

The Isozumi et al. and Moore patents lack a teaching that the planet carrier, gear shafts and projections are formed by cold forging and that the planet carrier has a continuous metal flow from itself to the gear shafts and the projections.

The Kusumoto et al. patent teaches that the planetary carrier or flange 11 can be forged in column 4, lines 52-55. The supporting pins 22 that support planetary gears are formed by a series of steps that press the supporting pins 22 out from the flange 11 using punches 31 and 32 and die 40. See column 4, lines 55-67 and column 5, lines 1-

33 and Figs. 2A-2D. The supporting pins 22 are therefore integrally formed with the flange section 20 and has a continuous metal flow from the flange section 20 and flange 11 to the supporting pins 22. See column 5, lines 34-38.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Isozumi et al. and Moore patents to form the planet carrier, gear shafts and projections by cold forging and that the planet carrier has a continuous metal flow from itself to the gear shafts and the projections as taught by the Kusumoto et al. patent. The motivation for doing so would be to reduce the number of parts, achieve greater ease of assembly, and reduce the cost of the carrier as taught in the Kusumoto et al. patent in column 5, lines 34-38.

***Allowable Subject Matter***

11. Claims 6 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 3,885,995 to Cunningham et al.; U.S. Patent No. 5,319,989 to Burch; U.S. Patent No. 5,649,879 to Kusumoto et al.; and U.S. Patent No. 5,898,229 to Murata et al.

***Facsimile Transmission***

Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is (571) 273-8300. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see MPEP 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check.

Responses submitted by facsimile transmission should include a Certificate of Transmission (MPEP 512). The following is an example of the format the certification might take:

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Typed or printed name of person signing this certificate:

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(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and MPEP 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin K. Holmes whose telephone number is (571) 272-5930. The examiner can normally be reached on 8:00am to 4:30pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on (571) 272-7095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JKH



10/8/2005



SHERRY ESTREMSKY  
PRIMARY EXAMINER  
AU3681 10-14-05